

## C-130J Aircraft

### Executive Summary

- Approximately 70 percent of the aircraft is new development and system integration relative to the legacy C-130s flying today.
- Some major mission areas remain untested; therefore the overall system operational effectiveness and suitability cannot be fully characterized.
- C-130J operational testing will likely continue past 2008 as the program shifts to spiral development.
- There are no milestone decision reviews planned for any variant of the C-130J.

### System

- The C-130J is a medium-sized four-engine turboprop tactical transport aircraft.
- The number of aircrew is reduced from five to three on the basic J model. Additional crew are required on some combat delivery missions.
- The C-130J is 70 percent new equipment including: a glass cockpit and digital avionics, advanced integrated diagnostics, new propulsion system, improved defensive systems, and enhanced cargo handling system.
- The C-130J has two different lengths denoted as a long and a short body. The long body carries eight pallet positions. The short body has six pallet positions.
- The WC-130J has a low-power color weather radar, external atmospheric sensors, and dropsondes for the hurricane reconnaissance mission.

### Mission

- Combatant commanders use the C-130J for combat delivery missions including tactical airdrop and airland delivery of



supplies, personnel, and heavy equipment within a theater of operations.

- Combat Delivery units operate in all weather conditions, use night-vision lighting systems, and use civil-controlled airspace.
- Combat Delivery aircraft can perform limited emergency aeromedical evacuations.
- Variants of the C-130J are intended to be employed in:
  - Fire-fighting
  - Weather reconnaissance (WC-130J)
  - Electronic combat (EC-130J)
  - Marine Corps aerial refueling (KC-130J)
  - Coast Guard search and rescue (HC-130J)

### Activity

- The C-130J has been deployed to Southwest Asia since December 2004 and is being used for the tactical airland mission.
- The Air Force Flight Test Center (AFFTC) ended Qualification Test and Evaluation (QT&E) on the Block Upgrade 5.4 aircraft; however, testing of formation flight using Station Keeping Equipment in instrument flight conditions was not accomplished.
- The Army successfully completed an airdrop Limited User Test of the C-130J (long body), which included paratroopers, container delivery system bundles, heavy equipment, and sequential platform airdrop operations in August 2005.
- Air Force Operational Test and Evaluation Center (AFOTEC), AFFTC, Air Mobility Command, and the Navy accomplished

various developmental test and operational test events in a joint effort to evaluate the Defensive Systems suite. Details of the AAR-47 infrared missile warning system testing are in the dedicated AAR-47 annual report.

- AFOTEC began Phase II Qualification Operational Test and Evaluation (QOT&E), using long- and short-body aircraft, in October 2005.
- Phase II QOT&E will include an assessment of the workload with the reduced crew complement, Main Operating Base flight and maintenance activities, tactical operations at the Joint Readiness Training Center, and cold weather operations in Alaska.
- Evaluation areas in operational testing are mission planning, pre- and post-flight operations, en route operations,

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airland, airdrop, formation operations, sustainment, sortie generation, and self-deployment to representative operational environments.

## Assessment

- The following were not adequately characterized prior to entry into Phase II QOT&E:
  - Correction of some deficiencies
  - Establishment of new procedures
  - Full characterization of defensive systems
  - Formation flight in adverse weather

Evaluations of these are not included in Phase II QOT&E.

- Developmental test results by AFFTC and the Army's Limited User Test indicate that the C-130J will be operationally effective in single ship airdrop under specific scenarios and conditions.
- This evaluation is waiting for the analysis of Phase II QOT&E data. The reliability, maintainability, and availability performance of the C-130J have not been evaluated relative to

operational requirements. Reports from Air National Guard and Air Force Reserve units, from deployments in Southwest Asia, as well as from QT&E, will be utilized.

- C-130J Engine Nacelle Fire Suppression System Testing is on hold awaiting resolution of environmental concerns raised by SAF/AQR regarding the use and atmospheric release of Halon 1211.

## Recommendations

1. Follow-on operational test and evaluation will be required to evaluate formation flight using Station Keeping Equipment in instrument flight conditions and improved defensive systems, as well as future block upgrades.
2. The U.S. Air Force needs to fully assess the defensive systems (AAR-47 and ALR-56M) as installed on the C-130J.